

Evolution of Educational Leadership: A Bibliometric Analysis of International Publications

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Abstract. *Research on educational leadership has received significant scholarly attention for over half a century, resulting in a vast body of literature on the subject. Numerous studies and inquiries have highlighted that educational leadership is an exceedingly complex and vital phenomenon. However, a gap persists in scholarly discourse concerning the presentation of this knowledge base through bibliometric analysis. This study seeks to provide an overview of the evolution of this concept by identifying articles published in journals indexed in the Web of Science Core Collection (WoS) database between 1993 and 2024. The search employed terms such as "educational leadership", „educational management” "leadership in education," "school leadership", „teacher leadership”, „style leadership in education” and „school improvement” yielding an initial total of 3089 articles. Subsequently, following the application of inclusion and exclusion criteria, 1583 studies were retained for analysis. The research encompasses the general profile of articles, the annual distribution of article frequency, the most prolific researchers, journals, and countries by article count, the most influential articles based on citation count, the most frequently recurring author keywords, and the year of publication of these articles. The contribution of this study lies primarily in highlighting the systematic methodologies employed in research analyses in educational leadership and management. Additionally, collaborative patterns among authors, universities, and countries are presented and analyzed. The conclusions provide valuable insights for researchers into the detailed evolution of educational leadership through the structuring of existing literature in the field. Furthermore, based on these findings, some suggestions have been made for identifying new research themes in this field, both conceptually and empirically.*

Keywords: *education, leadership, educational leadership, teacher leader.*

Introduction

Educational leadership is an essential element of school management, playing a significant role in enhancing the quality of the educational process, thus positioning itself at the heart of today's educational debate. (Bush & Marianne, 2000).

In international educational practice, the term "educational/paideutic leadership" (also known as teacher leadership) is highly topical, while the concept of teacher-leader has undergone profound transformations throughout the 20th century. According to Holden et al. (2012) analyzing large datasets from bibliographies enables the exploration of the sociology of science, and

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elucidates trends across various domains, relationships among individuals, journals, and institutions. To harness these benefits, scholars have shown a growing interest in bibliometric analysis not only within educational sciences but also across other disciplines. (Bozdoğan, 2020; Gong et al., 2019; Gülmez et al., 2021; Xie et al., 2016; Zang et al., 2020).

Research on the evolution of educational leadership through bibliometric analysis is currently lacking. Hence, this paper commences with the following inquiries:

1. What is the frequency distribution of articles on educational leadership over the years?
2. Who are the most prolific researchers based on the number of articles published in WoS?
3. Which journals exhibit the highest productivity based on the number of articles published in WoS?
4. Which countries demonstrate the highest productivity based on the number of articles published in WoS and what is the pattern of collaboration between countries in educational leadership research?
5. What are the articles most frequently cited based on total citation count?
6. What are the most frequently recurring author keywords in educational leadership research?

Through a comprehensive analysis of the relationship between keywords and resulting clusters, the research unveils the complexity of this topic. Moreover, the prevalence of this subject across a large number of studies in recent years underscores the significance and contemporary relevance of educational leadership.

Literature review

The manner in which a leader establishes a goal and motivates multiple individuals to act with dedication towards achieving an objective, as well as the means employed to induce the desired behavior, constitutes a highly debated topic, prompting a series of specialized research and studies. The literature on theories and evolution of leadership is extensive, encompassing both theoretical and practical approaches.

The evolution of the main paradigms that shaped the scientific concept of leadership throughout the 20th century is presented in the works of House and Adity (1997) and Hunt (1999). However, attention to this theme gained momentum at the beginning of the 21st century (Gond and Mignonac, 2002; Blais and Sinclaire-Desgagné, 2002). A series of studies have focused on identifying and describing leadership styles from both classical and contemporary perspectives (Northouse, 2007) and on developing leadership models (Hughes et al., 2022). Notably, Flamholtz and Randle (2007) pioneered the construction of the first matrix of leadership styles. Other scholars have endeavored to reveal the defining traits of a leader, including the ability for abstract and analytical reasoning, as well as the creative, strategic and visionary thinking (Burdus & Popa, 2013). Additionally, investigations were conducted into the variations prompted by select socio-demographic variables (including age, gender, and position held within the organization) in shaping preferences towards distinct forms of leadership: transformational, transactional, and laissez-faire. (Northouse, 2018).

An essential aspect concerns the applicability of the concept across various domains, including education (Hallinger, 2003). Accordingly, the concept of educational/ paideutic leadership (teacher leadership) has been recognized and defined, undergoing significant transformations throughout the 20th century. The concept of educational leadership gained prominence in the early 1980s, as part of a call for the professionalization of the teaching staff in the USA, aimed at ensuring quality education.

Little J. W. (2003), one of the proponents, argues that the concept of teacher-leader embodies a significant asset for restructuring and revitalizing the pedagogical profession. This

profession is no longer confined to being solely a technocrat or an executor of decisions from higher authorities; instead, it is now encouraged to transition into a reflective practitioner, actively engaging in decision-making across all levels. The implementation of educational leadership has gained momentum in the past two decades, with teachers taking on increased leadership responsibilities, not only in instructional settings but also within organizational practices of educational institutions (York-Barr & Duke, 2004).

The role of the teacher-leader has become pivotal in implementing educational reform (Billingsley, 2007). According to authors M. Katzenmeyer and G. Moller (2001), the development of teacher-leaders aims to ensure quality in education by enhancing the professionalism of the teaching staff. Hence, the approach and perception of teachers as leaders of their own activities, leaders within the student class, leaders in the process of personal and organizational development, irrespective of hierarchical structures, contribute to the improvement of the educational process and consequently affect the ongoing refinement of educational practices (Blase & Anderson, 1995). Thus, any teacher interested in change and development can assume a leadership role, regardless of whether they hold a hierarchical position. The teacher in the role of a leader guides a group of students, exerting influence over classroom and school dynamics, acts as a friend and confidant to students, and may even serve as a substitute for parents, providing role models to their disciples or offering support in alleviating states of anxiety.

Analyzing theories pertaining to pedagogical approaches through the lens of educational leadership, scholars like Johns H. and Moser R. (2001), J. Murphy (2005), and P.A. Wasley (1991) emphasize the effective functioning of teacher-leaders within the professional community and their substantial impact on student learning, thereby enhancing the quality of pedagogical activities. T. Bush (2015) offers a perspective on school leadership based on six models of educational management: frontal, collegial, political, subjective, ambiguous, and cultural. It is noteworthy that these models garner heightened scholarly attention in the literature on educational management and leadership, with their analysis grounded in criteria encompassing: 1) alignment with institutional goals/objectives, 2) the significance and validity of structures within educational institutions, 3) the relationship between the institution and its external environment, and 4) the most suitable leadership strategies for the educational institution. Consequently, based on the six models of educational management, ten leadership models have been delineated, as depicted in the following table (Bush and Glover, 2003).

Tabel 1. Typology of management and leadership models

The management model	The leadership model
Frontal	Managerial
Collegial	Participatory Transformational Distributive
Political	Transactional
Subjective	Postmodern Emotional
Ambiguous	Circumstantial
Cultural	Moral of training (centered on learning)

(Source: T. Bush and D. Glover, 2003).

The scholarly discourse, encompassing various pragmatic research endeavors within the educational domain, particularly in the United Kingdom (Frost & Durrant, 2003; Swaffield, 2008),

has identified and delineated the principles and leadership styles adopted by diverse pedagogical practitioners to optimize the educational process. Drawing upon these investigations, the University of Cambridge inaugurated the International Teacher Leadership initiative in 2008, aiming to devise a comprehensive repertoire of techniques, methodologies, tools, and supplementary resources to bolster the professionalism of pedagogical staff (Frost, 2012).

Notwithstanding the evolution towards more empirically grounded insights into school leadership over the past four decades, a considerable proportion of studies and research remain predominantly prescriptive, anchored more in values than empirical evidence (Hallinger, 2010). Consequently, while there exists a substantial body of literature on educational leadership, the absence of a bibliometric inquiry is conspicuous. This study endeavors to address this gap in the scholarly discourse through the application of bibliometric analysis

Research methodology

Setting the Research Objectives and Hypotheses

The aim of investigating this topic is to ascertain the significance and progression of the educational leadership concept through an examination of existing studies within the realms of pedagogical theory and specialized practice. The primary goal of this inquiry is to examine the development of the educational concept as a process encompassing the formation and demonstration of the teacher-leader within the context of professional learning communities at various levels.

The Search Strategy

The data was sourced from the Web of Science (WoS) database, which was chosen for its capacity to refine searches within the realms of education and educational research. Additionally, Wang and Waltman (2016) demonstrated that the WoS journal classification system exhibited higher accuracy compared to the Scopus database. The scanning process was conducted on January 15, 2024. The search was performed within the "topic" category, encompassing titles, abstracts, author keywords, and additional keyword. By focusing exclusively on the subject of "educational leadership" and employing the same keywords and result refinement categories, the alternative search conducted in both the WoS and Scopus databases yielded the following outcomes:

Table 2. „Leadership-ul educational” bazele de date Wos și Scopus

Criteria	WoS	Scopus
Initials documents	3089	1799
Documents after refining by time and categories	1582	737
Review	101	52
Documents for analysis	1481	685
Most prolific author	Hallinger, P (26 articole)	Devos, G (4 articole)
University with the most articles	Monash University (28 articles) and University of Virginia (28 articles)	Universidad de Granada (9 articles)
	UNIVERSITY OF VIRGINIA	
Main sources	Educational Management Administration Leadership (94 articles)	Journal of Educational Administration (28 articles)
Country with the most articles	United States (622 articles)	United States(245 articles)
Most citations of an article	1027	201
Average citations per document	11.14	7.3

Source: Authors' own research, based on data extracted from WoS and Scopus.

The comparative analysis of the results unequivocally demonstrates that WoS encompasses a significantly broader spectrum of articles on this topic, totaling a 116% larger number of articles

than Scopus (1481 compared to 685). Considering the fundamental inquiries outlined in the introduction of this study, the WoS database provides notably more pertinent information regarding both the authors, sources, universities, and countries engaged in investigating this subject, as well as the intricate interrelations among them, owing to its higher citation frequency.

Consequently, WoS enables the creation of more insightful clusters elucidating the interconnectedness among authors, universities, and countries, thereby facilitating the monitoring of the emergence and progression of pivotal concepts within the realm of educational leadership. Using terms such as educational leadership, leadership in education, school leadership, leadership in school, educational management, our aim was to identify all conceivable conceptual variations.

The initial search yielded 3089 results. Additionally, publications from 2024 were excluded, resulting in a total of 2759 articles. Following the refinement of the "Education, Educational Research" category, a subset of 1582 articles remained for analysis. It should be noted that the articles categorized as "Review" (101 articles) were excluded, whereas articles labeled as "Early Access" (271 articles) were kept, considering that the research was conducted in early January 2024 and the time until their inclusion in the volumes could extend. Consequently, a number of 1481 articles were subjected to bibliometric analysis.

Data analysis

Data analysis was conducted using VOS viewer software version 1.6.20, following the five-step process proposed by Zupic and Cater (2015). These steps encompass (1) establishing the research design, including formulating the research question and selecting the suitable bibliometric approach, (2) compiling bibliometric data involving database selection, filtering, and downloading, (3) visualization of the data, (4) analysis which entails employing appropriate software tools and data refinement techniques, and (5) interpretation of the findings focusing on the identification and contextualization of key insights from the analysis.

The fundamental procedures of educational leadership analysis and scientific mapping were employed throughout the data examination process (Noyons et al., 1999). Initially, attention was given to identifying scholars, institutions, and publications related to this topic. Subsequently, the scientific mapping endeavor aimed to depict the dynamics of scholarly fields and disciplines (Zupic & Cater, 2015).

To ensure a thorough analysis, the research frequency distribution pertaining to "educational leadership" was scrutinized across various parameters, including temporal trends, the most prolific authors, journals, and contributing countries, as well as the number of articles, the prevalence of keywords, and the impact of influential works as gauged by citation counts. Conversely, the scientific mapping aspect of the study provided valuable insights into keywords utilization, co-authors, and collaboration patterns between institutions and countries.

Results analysis

Table 3 below presents the key data information. In essence, the study examined 1481 journal articles published in 260 sources between 1993 and 2024. As depicted in the table, the average citation count per article stands at 11,14, with an annual average of 1.62 citations per article. There are 2858 author keywords. The number of authors of single-authored articles is 441, with 2001 articles having multiple authors.

Table 3. Main Information about the Articles

Description	Results
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Timespan	1993-2024
Sources	406
Documents	1481
References	56161
Average citations per document	11,14
Keywords Plus (ID)	1112
Author's Keywords (DE)	2858
Authors	2442
Authors of single-authored documents	441
Authors of multi-authored documents	2001
Single-authored documents	556
Co-Authors per doc	2.12
International co-authorships	20.78
article	943
article, book, chapter	138
article; early access	271
article; proceedings paper	2
book	9
book review	3
editorial material;	46
proceedings paper	69

Source: Authors' own research, based on data extracted from WoS.

The first research inquiry focused on the temporal frequency distribution of research output concerning educational leadership. Graph 1 (figure 1) illustrates the frequency distribution of articles per year and the trajectory of citations as of 1994. The total number of publications between 1993 and 2023 is 1481, spanning nearly 25 years. The year 2020 emerged as the most prolific year, yielding a total of 132 articles published and year 2022 is the year having the highest citation count (2069). Conversely, between 2010 and 2020, 553 articles were published, accounting for 67% of the total.

During the period from 2001 to 2010, 144 articles were published, accounting for 10% of the overall corpus. In this context, the decade from 2010 to 2020 emerges as the pinnacle of scholarly activity in educational leadership research. Moreover, in the last three years (2021-2024), 168 articles were published, indicating a considerable focus on the topic of educational leadership and its implications. The findings reveal a consistent upward trend in scholarly activity over the past thirty years, with a notable acceleration observed between 2015 and 2020, during which more than half of the extant articles were published. Reynolds (2010) posited that leadership received scant attention in educational research and exerted minimal influence within the field of educational sciences until the early 1990s, largely due to a dearth of systematic and pragmatic investigation. However, since the dawn of the 21st century, scholarly inquiry has experienced notable intellectual and practical advancements in this domain.

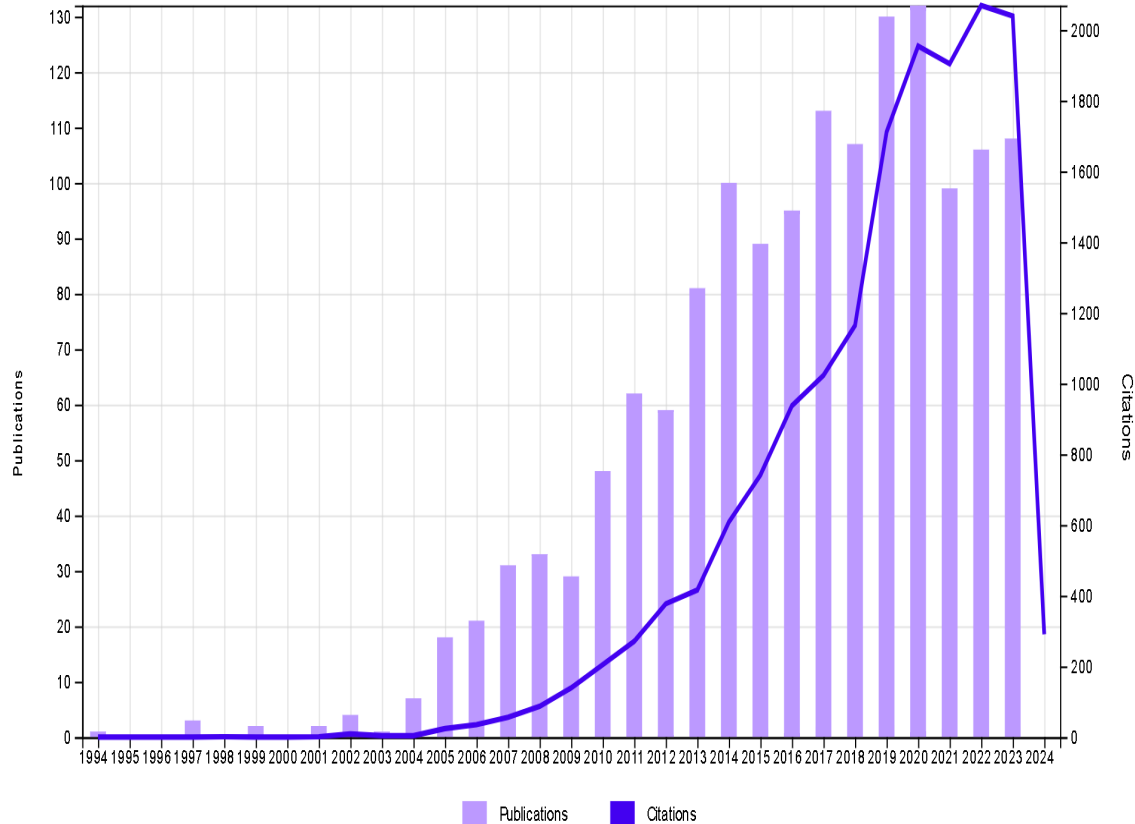


Figure 1. Times Cited and Publications Over Time

Source: Authors' own research, based on data extracted from WoS.

The second research inquiry focused on identifying the most prolific authors concerning school effectiveness, based on the number of articles authored. Table 4 provides a ranking of the top ten authors. The majority of authors (95%) have contributed one or two articles on educational leadership. Upon reviewing the data in the table, it becomes apparent that Hallinger P holds the highest position in terms of productivity, with 26 articles to his name. Following closely, Young M.D. and Eacott S rank among the most prolific authors, both with fourteen articles, while Arar K takes third place in productivity and citations, with twelve articles.

Table 4. The most prolific authors by the number of articles

Author	Articles	Citations (f)
Hallinger P	26	1492
Young MD	14	129
Eacott S	14	206
Arar K	12	73
Dorczak R	11	4
Brooks JS	10	64
Bush T	8	204
Pashiardis P	8	142
Hammad W	8	176
Gümüs S	7	63
Torrance D	7	78

Source: Authors' own research, based on data extracted from WoS.

Upon scrutiny of citation counts, these three authors emerge as both the most prolific and the most cited, according to our research. Notably, P. Hallinger stands out as the foremost leader in citations, with an impressive count of 1492, a fact that reflects the importance of his studies in the field, doubled by a rich experience as a university professor in various university centers on different continents.

Furthermore, table 4 highlights a crucial insight regarding the ranking of the top ten authors who, collectively, account for 135 articles. It is noteworthy, however, that only the first five have made substantial contributions, each author having published ten or more articles on the subject, while the remaining authors have authored fewer than ten articles.

In order to highlight even more clearly the relationships between the main authors in the field and the circulation of ideas and concepts specific to educational leadership, we called for the creation of a map based on the citations used by the most prolific authors, as can be seen in the figure 2.

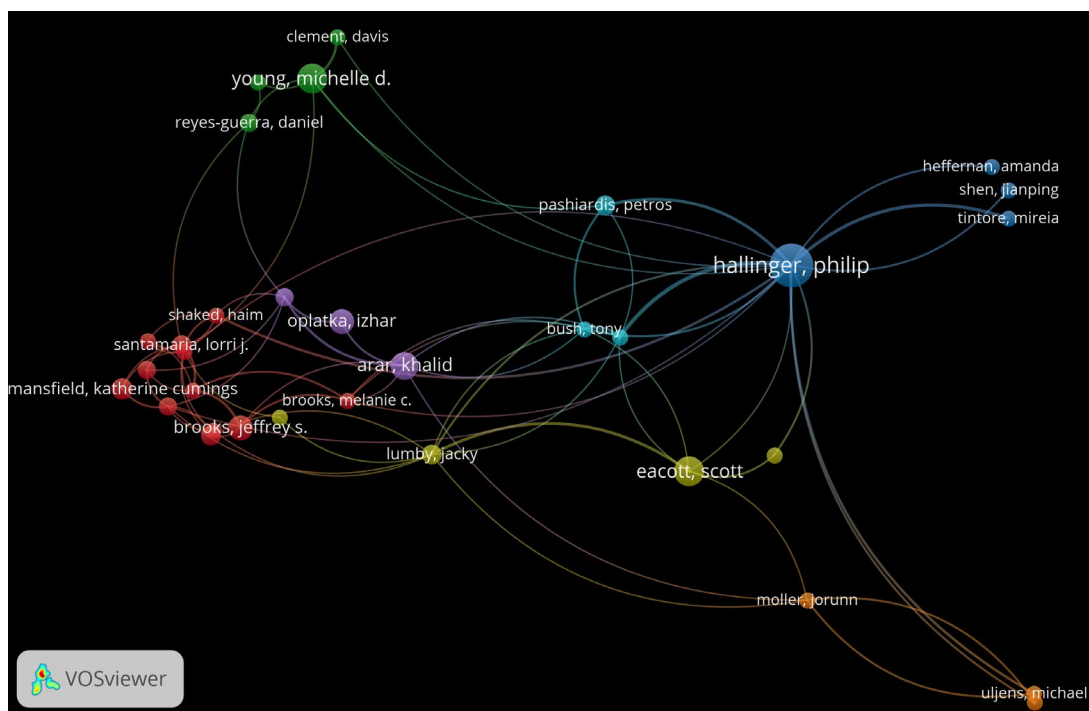


Figure 2. Network of authors by citations

Source: Authors' own research, based on data extracted from WoS.

Figure 2 illustrates networks among 38 authors, grouped into 11 clusters and delineating seven significant groups and four separate positions. The blue cluster, with Hallinger serving as a central figure, has connectivity with all other clusters and encompasses seven noteworthy authors: Bush, Tony, Pashiaridis, Petros, Heffernan W. This prominence is attributed to Hallinger's extensive contribution, totaling 26 studies in the field. Particularly noteworthy are the 10 authors within the violet cluster given their interactions with authors from the blue, orange and yellow clusters. The largest cluster is the red one, comprising 12 authors, including notable figures such as: Carpenter Bradley and Guillaume Rene. Additionally, authors Young M. D., Clement D, and Berkovich I. from the green cluster, should not be overlooked, as their studies published recently in 2022 may catalyze new research themes in the field of educational leadership. Thus, an important

role is played by Educational Leadership Preparation Programs (ELPP) who have extended beyond the walls of universities (Ni et al., 2023) and include candidate recruitment and selection, curriculum focus, instructional strategies, program delivery methods, internship practices and training programs for school principals (Clement et al., 2022).

The authors are from different countries and universities, which indicates a high level of collaboration between countries, but also an increased interest in this topic worldwide.

The third research inquiry delved into the most productive journals in terms of the number of published articles. Key determinants of scientific journals reveal that the most prolific sources are Educational Management Administration Leadership, International Journal of Leadership in Education, Journal of Educational Administration. The combined number of articles published in these three journals constitutes approximately 20% of the total publications. Consequently, it is evident that these three journals have made substantial contributions to research on educational leadership and have played a pivotal role in establishing it as a recognized field of study.

Table 5. The ten most prolific sources by article count

Sources	Articles	Citations
Educational Management Administration Leadership	94	2801
International Journal of Leadership in Education	93	2453
Journal of Educational Administration	87	2123
Educational Administration Quarterly	80	1457
Journal of Research on Leadership Education	57	675
School Leadership Management	57	1329
Journal of Educational Administration and History	49	246
Leadership and Policy in Schools	28	472
International Journal of Educational Management	20	358

Source: Authors' own research, based on data extracted from WoS.

Based on the data presented in Table 5, the articles included in the dataset were disseminated across 252 distinct journals. Notably, a considerable number of journals, totaling 141, contributed singular articles on educational leadership, while a select few demonstrated a higher level of engagement, each publishing ten or more articles on the subject. Table 4 delineates the top ten most prolific journals, which collectively disseminated 486 articles. This corpus represents a significant portion, comprising 32% of the total publications, underscoring the quantitative relevance of our research endeavour.

Research on educational leadership has been disseminated across various journals, as listed in the table above. A top-ranking journal, *Educational management administration leadership* stands out with 94 articles and it counts only 6.34 % of the total corpus. The distribution of articles in as many magazines as possible emphasizes the importance of leadership in education and its special place in educational management. the journals listed above are among the most influential platforms that shape the discourse on school leadership effectiveness research.

The fourth research question addressed the most productive countries. The findings reveal that the United States of America and the United Kingdom are the most productive countries. Researchers from the United States of America contributed the most to the definition, conceptualization and implementation of leadership in education, through numerous theoretical and empirical studies. The genesis of studies in Educational Leadership predominantly traces back to the United States of America and the United Kingdom, subsequently disseminating to nations such as Thailand,

China, and Australia. Moreover, the rapid development observed in other countries suggests a correlation between the expansion of the field and its productivity.

Table 6. The Ten Most Productive Countries based on the Number of Articles

Country	Documents	%	Citations
The United States of America	622	41.9	7084
England	146	9.8	1709
Australia	125	8.4	1498
Canada	85	5.7	506
Spain	81	5.4	447
Peoples R. China	51	3.4	1040
Israel	47	3.1	534
South Africa	43	2.9	384
New Zealand	36	2.4	1616
Turkey	28	1.8	174
Poland	24	1.6	5

Source: Authors' own research, based on data extracted from WoS.

When assessing countries with the highest productivity, table 6 delineates the number of articles and the corresponding percentage of each country's contribution. The results indicate that the United States leads the pack, with a total of 622 articles, representing 41.9% of the overall corpus. Following closely, the United Kingdom occupies the second position with 146 articles (9.8%), trailed by Australia with 125 articles (8.4%). While other countries also make significant contributions to the literature, none exceed fifty articles. Canada comes closest to this figure, boasting 85 articles, representing approximately 5.7% of the total article count.

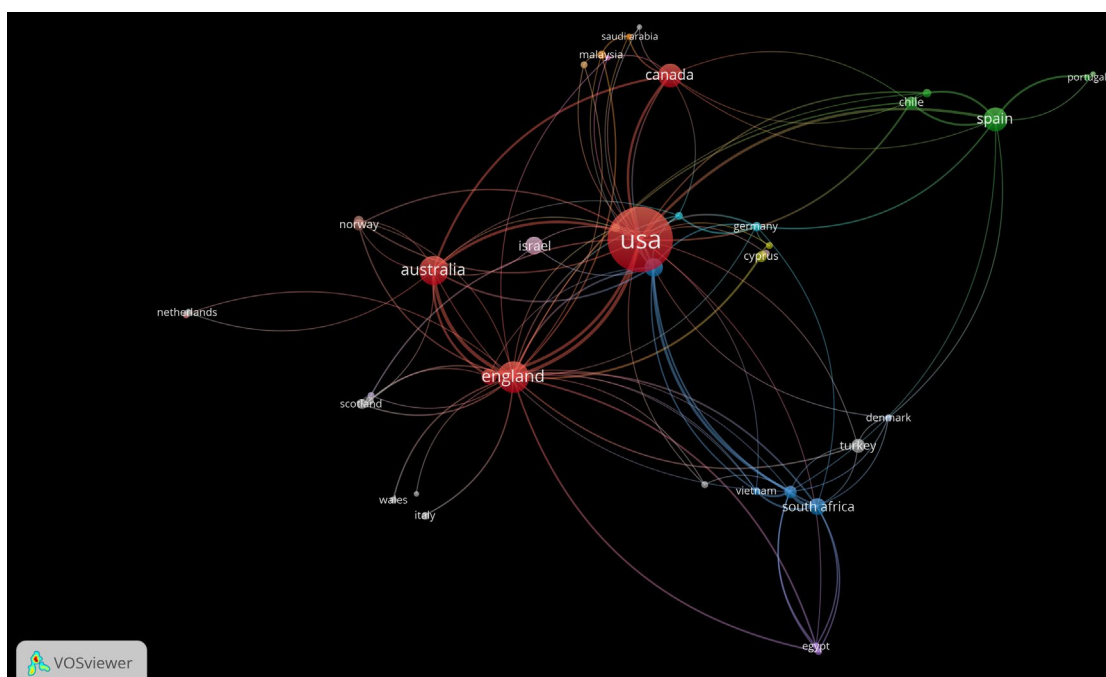


Figure 3. The collaboration network among countries

Source: Authors' own research, based on data extracted from WoS.

Figure 3 illustrates the collaboration network among countries and the graph summarizes 94 countries grouped into 14 clusters. Four clusters are formed by only one country, without

relations with other clusters or countries, as is the case of Poland, Romania, Latvia and Indonesia. As depicted, the United States of America is at the center of the most important cluster (the red one) made up of 7 countries: Austria, Cyprus, Finland, Germany, Ireland, Switzerland.

The second largest cluster (the green one) is centered on Canada and 5 other countries. South Africa, Thailand and 4 other countries form the third cluster (blue), with prominent collaboration links, this being further clarified by the research activity of Hallinger, who has elaborated various studies as a professor at Mahidol University in Bangkok. Spain together with 4 other countries form cluster four (yellow). England is in the center of cluster 5 (purple) and New Zealand, Singapore, Greece and Scotland form cluster 6 (cyan).

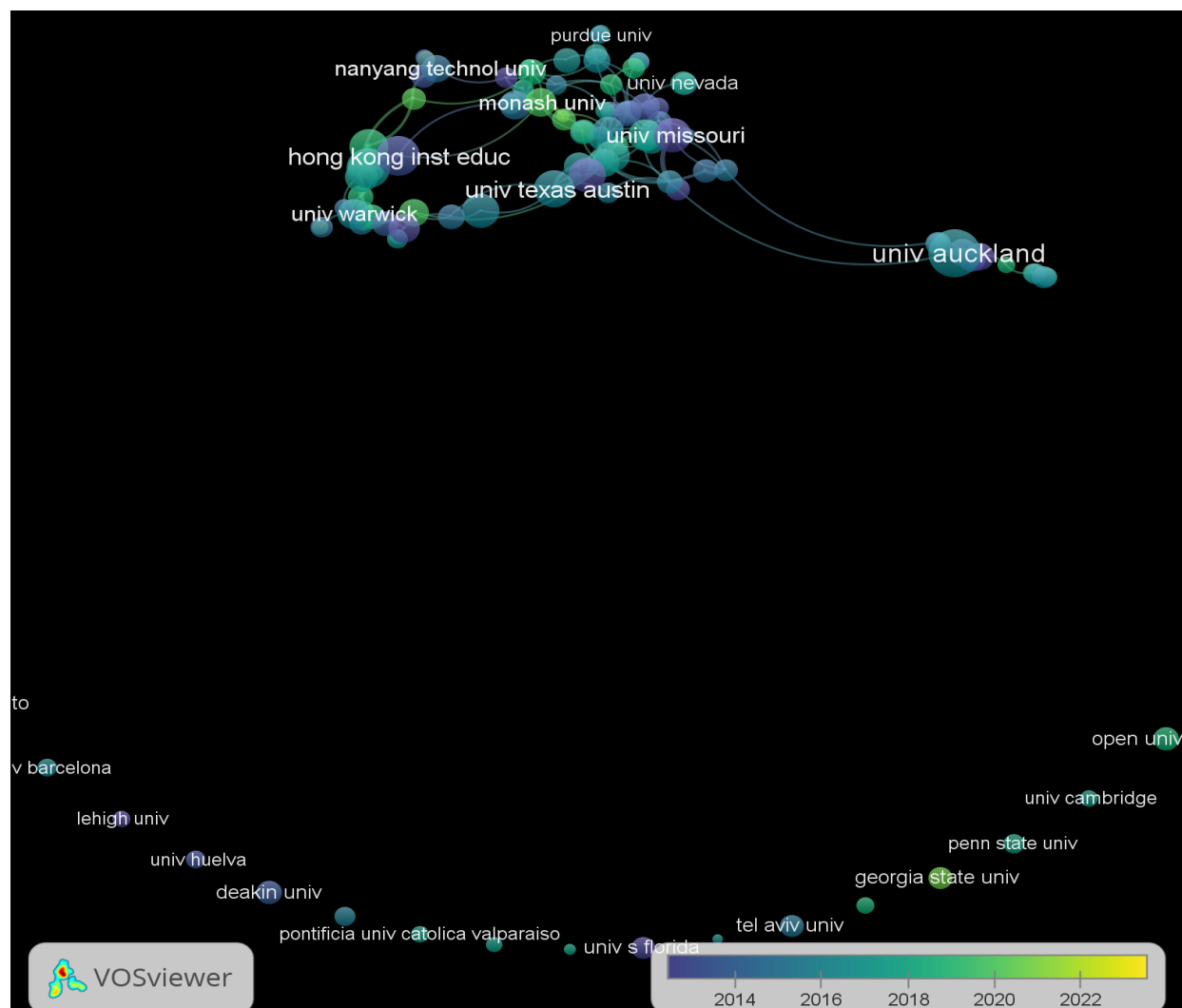


Figure 4. The collaboration network among universities based on cited articles, spanning the period from 2010 to 2023

Source: Authors' own research, based on data extracted from WoS.

The collaboration network among academic institutions engaged in research in this field offers an insightful overview of the diversity and global distribution of research efforts. For the period spanning the 1990s to 2000s, one can notice a relatively low number of research, only seven

articles, endeavors within universities such as those in Georgia, New York and Maryland (USA) and Utrecht and Flinders University South Australia. Between the years 2001-2010, the attention paid to educational leadership will increase reaching a number of 144 articles, most of them being within the University of Florida (7 articles) and the University of Missouri (5 articles), with University of Warwick (5 articles).

The most prolific research on the implications of leadership in the educational field belongs to the period 2010-2023, approximately 90% of the total articles analyzed. Figure 4 illustrates both the frequency of research over the years 2010-2023 and the attention given to this topic based on the number of articles. Have been identified 114 educational institutions, grouped in 11 large clusters and 20 other isolated centers.

The peak of research activity on this topic is observed from 2010 to 2023, with leading universities including the Hong Kong Institute of Education, Chulalongkorn University in Thailand, Nottingham University, Education University Hong Kong, and the University of Edinburgh. It is worth noting that the top three positions held by universities in Hong Kong, Thailand, and South Africa are attributed to the intensive research activity within these academic centers by the most prolific author on this topic, Hallinger P, with his 26 works. In the past three years, there has been a notable increase in research activity on this topic at universities such as Mahidol University in Thailand, the University of Johannesburg, and Sultan Qaboos University in Oman, with the first two being linked to the collaborative efforts of the principal author, Hallinger. Table 7 shows the most prolific university centers in the field of educational leadership, during the last 30 years.

Table 7. The most prolific universities

University	Country	Documents	Citations
Monash University	Australia	28	228
University of Virginia	USA	28	299
University Johannesburg	South africa	22	246
University of Missouri System	USA	22	377
University of Illinois	USA	20	206
Jagiellonian University	Polland	20	5
University Auckland	Australia	18	1290
University Texas Austin	USA	17	551
University of Manchester	England	17	211
Columbia University	USA	16	97
University of Granada	Spain	16	137

Source: Authors' own research, based on data extracted from WoS.

The engagement with this theme by esteemed universities in the Australia, USA, England, and Hong Kong, alongside lesser-known academic institutions in Polland, Thailand or Oman, underscores the global significance of the topic. It also underscores the escalating interest among researchers worldwide regarding the implications of this burgeoning concept concerning leadership in education.

In reference to the fifth research inquiry, Table 8, presented herein, depicts the top 10 most cited articles within the domain of educational leadership. Foremost among these articles, based on citation count, is *"The Impact of Leadership on Student Outcomes: An Analysis of the Differential Effects of Leadership Types,"* authored by Robinson and Lloyd (2008). Furthermore, when proportionally considering the total number of citations presented in the table, this particular

article accounts for slightly over 36% of the overall citation count. Notably, this study delineates a correlation between transformational and educational leadership, elucidating their significant impact on teachers' efficacy in influencing student outcomes. The article also advocates for the pursuit of impactful research on effective teaching and teacher learning within the field of leadership studies.

Table 8. The ten most cited articles

Title	Author(s)	Journal	Citations
The Impact of Leadership on Student Outcomes: An Analysis of the Differential Effects of Leadership Types	Robinson, Viviane M. J.; Lloyd, Claire A.; Rowe, Kenneth J.(2008)	Educational Administration Quarterly	1027
Instructional Leadership and the School Principal: A Passing Fancy that Refuses to Fade Away	Hallinger, Philip (2005)	Leadership and Policy in Schools	348
Educational leadership and student achievement: The exclusive search for an association	Witziers, B; Bosker, RJ; Krüger, ML (2003)	Educational Administration Quarterly	324
Culturally Responsive School Leadership: A Synthesis of the Literature	Khalifa, Muhammad A.; Gooden, Mark Anthony; Davis, James Earl (2016)	Review Of Educational Research	313
Bringing context out of the shadows of leadership	Hallinger, Philip (2018)	Educational Management Administration & Leadership	265
Systematic Review of Key Leader Practices Found to Influence Student Achievement: A Unified Framework	Hitt, Dallas Hambrick; Tucker, Pamela D.(2016)	Review of Educational Research	157
A review of the empirical research on teacher leadership (2003-2017) Evidence, patterns and implications	Dong Nguyen; Harris, Alma; Ng, David (2019)	Journal of Educational Administration	83
The Nature and Effects of Transformational School Leadership: A Meta-Analytic Review of Unpublished Research	Leithwood, Kenneth; Sun, Jinping (2012)	Educational Administration Quarterly	211
Principals' leadership and teachers' motivation Self-determination theory analysis	Eyal, Ori; Roth, Guy (2011)	Journal of Educational Administration	150

Source: Authors' own research, based on data extracted from WoS.

Most of these studies conclude that there is no research in the body of literature reviewed who examined the impact of teacher leaders on student learning (Wenner and Campbell, 2017), because the teacher leadership is focused on roles beyond the classroom (policies, decisions), and ultimately and ultimately addresses the effectiveness of student learning.

The sixth research question identified the author's most frequent keywords. The findings showed that the terms appearing most frequently, other than the term "educational leadership"(447 occurrences) were "leadership"(212 occurrences), "school leadership"(84 occurrences), "social justice"(66 occurrences), and "principals"(59 occurrences), „higher education” (58 occurrences), education (41 occurrences), „leadership preparation” (37 occurrences) and „professional development” (34 occurrences).

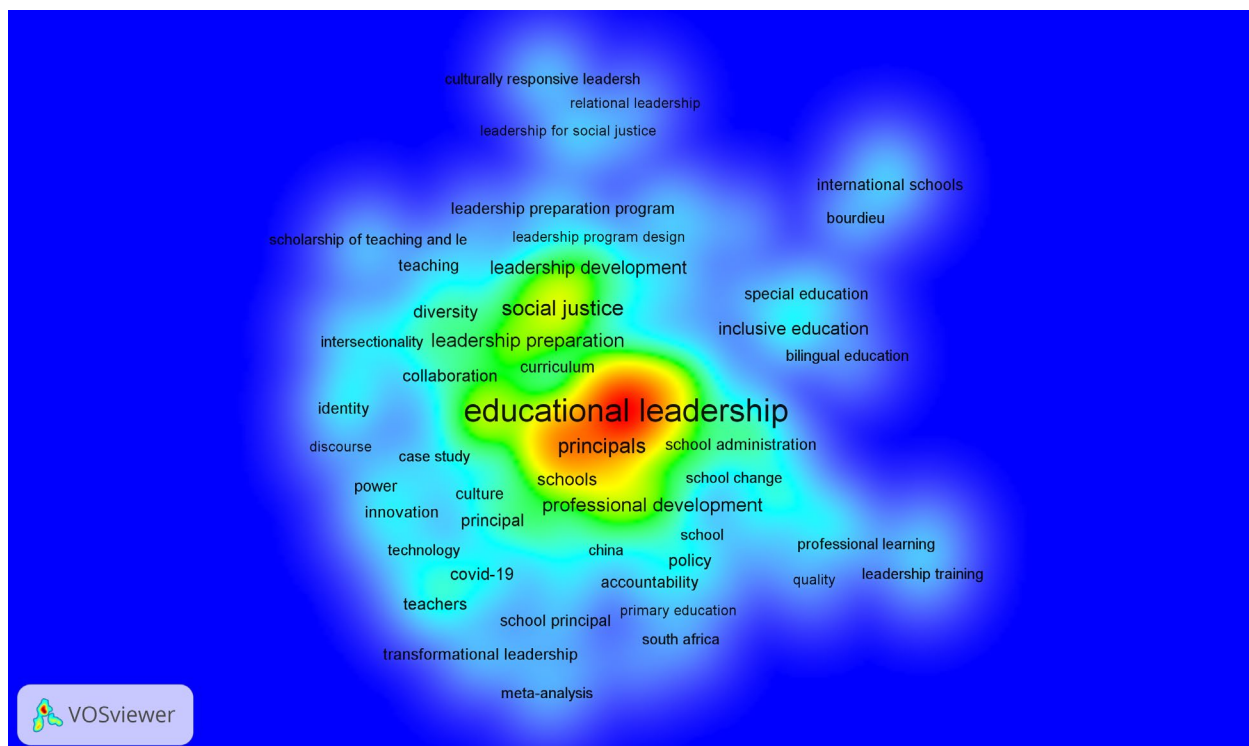


Figure 5. The most frequent keywords used by authors: Density visualization

Source: Authors' own research, based on data extracted from WoS.

Figure 5 depicts the most frequently used author keywords in educational leadership research. The findings indicate that 2868 different terms were employed as author keywords, of which 148 have a significant presence in the documents. The two collocation 'educational leadership' ($f=266$) and 'educational-leadership' ($f=212$) are very well connected with 'leadership' ($f=238$), 'school leadership' ($f=217$) and 'school improvement' ($f=22$). These relationships between key words to the concern of researchers regarding the improvement of institutional education, but also the attention paid to the training of teacher leaders. Other commonly used author keywords include 'performance' ($f=117$), 'achievement' ($f=122$), 'principal leadership' ($f=121$), 'improvement' ($f=101$), and 'leadership preparation' ($f=24$). Additionally, notable author keywords encompass 'educational administration' ($f=23$), 'educational management' ($f=21$), 'schools' ($f=15$), 'leadership preparation' ($f=94$), 'education' ($f=187$), and 'higher education' ($f=29$).

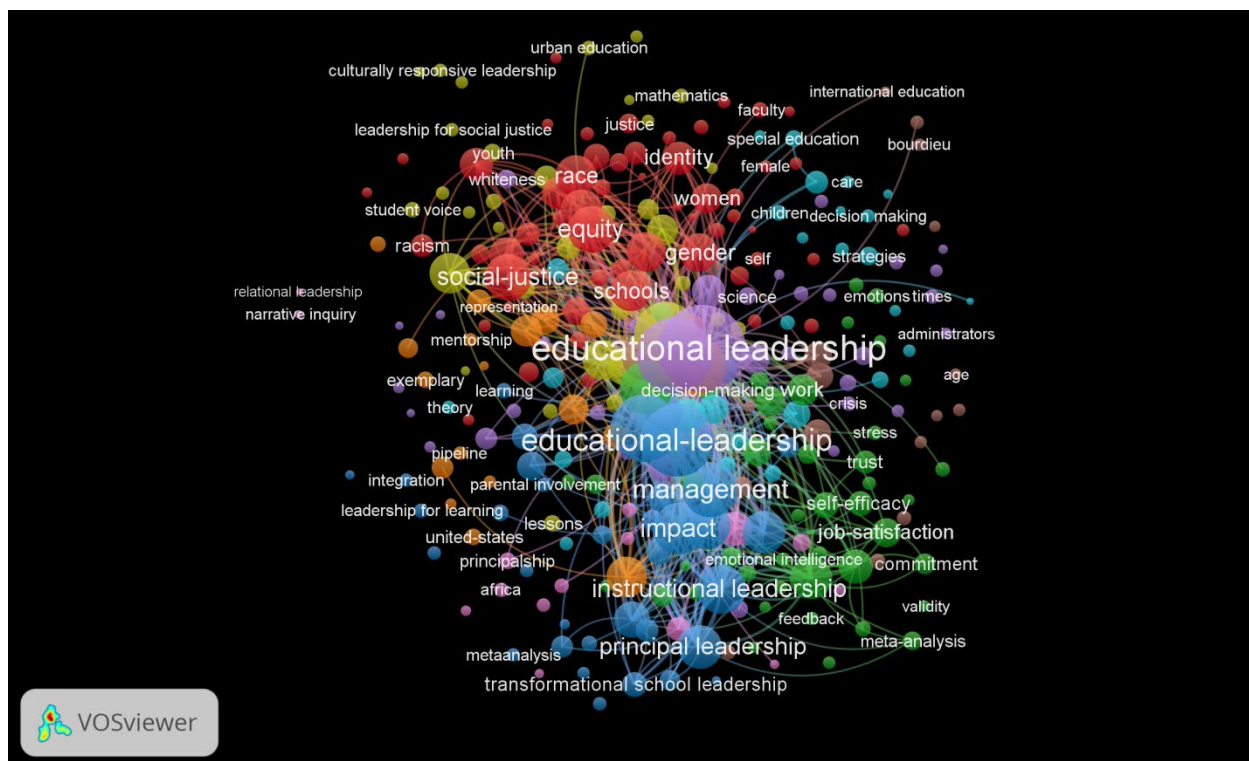


Figure 6. Co-occurrence of Author Keywords

Source: Authors' own research, based on data extracted from WoS.

Figure 6 illustrates the co-occurrence of author keywords. Using a criterion that requires a minimum of two keyword co-occurrences, the analysis considered 148 distinct author keywords.

The strong links between the key words of the authors are evident by grouping them into 15 clusters, all of them being interconnected. the largest group has the syntagma „educational leadership" in its center and includes 19 items. The analysis revealed nine clusters by the association strenght method, indicating clear connections between various concepts, such as 'educational leadership - leadership training - social management- educational- equity-curriculum-climate-educational reform. Notably, the close proximity of terms such as 'educational leadership', 'leadership development', 'school leadership', 'administration', and 'distributed leadership' not only underscores their intrinsic relationships but also suggests the identification of key variables for effective school leadership.

The research findings provide a thorough analysis of the evolution of the educational leadership theme over the past three decades, situated at the confluence of two pivotal fields: Education and Management. This confluence engenders manifold practical and theoretical ramifications. Notably, an interdisciplinary paradigm emerges, underscored by publications across esteemed journals addressing diverse themes, including the variables underpinning effective education, the ramifications of educational management, teacher development and training, as well as the nuanced impact of leadership styles on both schools in general and on individual students in particular.

Conclusions

The research results present the evolution and distribution of the main bibliometric indicators, but at the same time, they open new opportunities for research in the field of educational leadership, starting from the conclusions and the pragmatic recommendations of the studies used by this bibliometric analysis.

The main objective of this research endeavor is to delineate the significance and developmental trajectory of the educational leadership paradigm through an in-depth analysis of extant literature within specialized pedagogical theory and practice. This study aims to elucidate the bibliometric landscape of research contributions pertaining to educational leadership spanning the period from 1993 to 2024, leveraging the comprehensive Web of Science database. The bibliometric parameters under scrutiny encompass the frequency distribution of articles over the years, the identification of the most prolific researchers, journals, and contributing countries based on the number of articles, the most influential articles based on citation count, the most frequent author keywords, co-occurrence of keywords, as well as the elucidation of collaboration networks among authors, universities, and countries.

The results of the analysis show that the USA came out as the leading country with a large number of empirical and conceptual studies and also revealed the uneven geographical distribution of ethical leadership research across the countries.

The bibliometric analysis presented in this article unveils a remarkable surge in scholarly interest at the convergence of Management and Education. The global attention to this topic, along with the participation of numerous nations and top academic institutions, underscores a profound acknowledgment among influential stakeholders regarding the pivotal role of individual leadership demonstrated by educators in the educational sphere. The proliferation of studies on this theme from 2017 onward signifies the earnest endeavor of the academic community to enhance educational efficacy, with a central focus on the teacher-leader. This emphasis is particularly notable against the backdrop of contemporary educational landscape marked by the emergence of new forms of autonomous and technologically-advanced learning paradigms, including artificial intelligence, online learning platforms, search engines, and more. Moreover, scholarly investigations into this topic elucidate a significant evolution from management paradigms towards a more education-centered approach, fostering interdisciplinary convergences with fields such as behavioral psychology, personal development, social studies, and economic considerations in the cultivation of future teacher-leaders.

In discussing the limitations of this study, it is important to acknowledge that the research exclusively utilized the Web of Science (WoS) database, which may have led to the omission of pertinent works indexed in other databases or journals (e.g., Scopus). Additionally, another potential limitation lies in the selection of search keywords, which were limited solely to the lexical families of the terms "leadership" and "education". Given the substantial number of studies analyzed (815), we believe that the limitations of the research are minimal. As a result, the conclusions drawn offer a comprehensive and realistic depiction of this concept.

Future research endeavors may enhance the applicability of the findings by encompassing a broader spectrum of publications, as well as an expanded set of keywords. These could include, but are not limited to, terms such as educational efficiency, educational management, teacher training, and other relevant topics.

In terms of prospective research directions, there is potential for conducting more exhaustive co-citation analyses, as well as expanding the scope of research to encompass models

of educational leadership and the impact of leadership on educational outcomes. Such endeavors would facilitate the identification and pragmatic analysis of significant variations in student outcomes attributed to the adoption of specific leadership styles by individual teachers. They would also contribute to the cultivation and assessment of competencies crucial for effective educational leadership. Moreover, it paves the way for novel research endeavors by delving into the managerial implications of educational institutions on the educational landscape, thereby refining educational strategies with the teacher-leader at its core. The most cited articles revealed the effect of the training program in improving leaders' ethical awareness, judgment structuring, and the whole professional conduct (Ahmed, 2023).

Starting from the identification and analysis of existing studies in the field of educational leadership, future research directions will focus on determining the impact that teachers' leadership style has on students in particular and schools in general. Thus, the most cited articles and the most prolific authors presented in this study (Hallinger, Demichele, Young, Clement) can be a starting point in the creation of a model of the teacher leader and the experimental validation of this model. Based on the existing relationships between the keywords used by the authors in this field, the authentic principles specific to paideutic leadership will be elaborated, as well as the variables involved in the development of the leading teacher. Based on these words and the respective clusters, two important paradigms can be defined within the framework his educational leadership evolution. The first paradigm relates to the improvement practices of school leadership and decision makers, and the second focuses on the school and classroom components that need to be changed in improving student outcomes (Hallinger & Heck, 1996).

This theoretical endeavor, aimed at delineating the primary countries and universities engaged in the study of educational leadership, will ultimately culminate in future quantitative and qualitative analyses on how the teacher-leader must adapt to the particular context of each classroom, taking into account the economic, social, and political dimensions of the educational environment. The comparative study of the clusters and networks analyzed in this paper will lay the foundation for developing an efficient leadership model adaptable to any educational system, while remaining attentive to key socio-economic indicators, such as the economic and financial situation of the school, city, or country, purchasing power, development level, urban or rural settings, and other relevant factors..

Thus, this research fulfills its primary objective of addressing a gap in the realm of educational leadership. It also unveils fresh opportunities for inquiry by investigating the managerial ramifications of educational institutions on education, specifically through the customization of educational strategies centered around the teacher-leader.

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